

Solar Water Heating as a Green House Gas Reduction and Energy Conservation Strategy

Florida Solar Energy
Industries Association



Florida's Historical Use of Solar Water Heating

- The only way to heat water in the early 1900's
- Resurgence in 1978-1985 as a result of tax credits and FPL rebates
- Virtually eliminated from the market until 2006 with the rebirth of tax credits, state rebate, and utility rebates

Generates Energy/Saves Energy

- One solar water heater creates the equivalent of 2800 kWh per year, *or*
- One solar water heater saves 2800 kWh per year, *in other words* -
- Solar water heaters can be viewed as an energy generation device or and energy conservation device

Solar Water Heating's Green House Gas Reduction Potential

- Each solar water heater installed in Florida can offset green house gases each and every year of operation:
 - 4046 pounds of Carbon Dioxide
 - 11.9 pounds of Sulfur Dioxide
 - 7 pounds of Nitrogen Oxide

Cumulative Value From 1979 to 2006

- A Solar Water Heater has a design life of 20 years
- Florida residents installed 136,00 solar water heaters from 1978 through 2006
- \$500 million industry
- Offset nearly 100 tons of Green House Gases

Solar Water Heating in Utility DSM/RPS Programs

- If solar water heaters were included under aggressive utility demand side management programs or a renewable portfolio standard, Florida could realize significant installations. If even a small portion of renewable generation was provided by solar water heaters, the results would be dramatic:
 - 262,570 solar water heaters are installed over a twelve year period (residential share only, does not include commercial)
 - 4 billion kWh saved
 - > \$400 million utility bill savings
 - 400,000 kW demand reduction
 - 3 million tons GHG reduction
 - > 5,000 job years
 - \$1 billion industry

Solar Water Heating in New Residential Construction

- Consider solar water heating as standard in new home construction
- 150,000 home starts (single family only)
- Assume 80% feasible for solar
- Over a twelve year period, 1,440,000 systems would be installed
- Does not include the retrofit market (with a 4.4 million single family housing inventory)

Solar Water Heating in New Residential Construction

Impacts:

- 26 thousand GWh saved
- \$3 billion utility bill savings
- 2.2 GW demand reduction
- 19 million tons GHG reduction
- 30,000 job years
- \$6 million industry

Recommendations

- Encourage solar in new construction
- Create a dedicated fund to provide financial incentives
- Eliminate the RIM Test for utility solar water heating programs
- Establish goals for solar thermal within an RPS
- Require solar water heating on state buildings (owned/leased, new/existing) and all public educational facilities (new/existing)
- Require solar water heaters in state funded or administered affordable housing programs
- Provide dedicated budget for solar demonstration programs
- Increase commercial sector use of solar water heating